**Grade 4 ICT Water Conservation**

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| **Essential Question: How do the properties of water affect living things and the natural environment?** | | |
| Instructional Outcome: Students will analyze and describe the different ways our water supply can be conserved using their experiment observations and text evidence. | | |
| Language Objective (if applicable): A water meter is \_\_\_\_\_\_\_\_. We need to conserve water because\_\_\_\_\_. | | |
| **Common Core Standards Met: RI.4.1, SL.4.1, SL.4.3, SL.4.4, W.4.2** | | |
| **Danielson Standards: 3-b,c,d** | | |
| **Vocabulary:**  **Sustainability**-the ability to maintain or keep something going  Ground water  **Renewable and non renewable resources**  **shower/water meter** | | **Materials:**  Personal use water chart  Four 2L soda bottles (one should have a minute amount of water, roughly 50mL)  medium Starbucks cups  Key rings  Large rubber bands/ string  Water  Scissors  Plastic bins  Paper towels  Timers  Science notebooks  Single hole punch  <https://www.readworks.org/article/Water-Woes/d3d3bbea-920b-4f44-a8ff-5eade1311062#!articleTab:content/> |
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| **Learning Activities:** | | |
| * **Description:** The students will have covered the water cycle and have background knowledge on where NYC gets its water (watersheds, resovoirs, etc.) Through this lesson students will gain a deeper understanding about the amount of water that is actually available for human use. They will become informed about the different ways people are harming water, and the ways in which they can help to conserve. This hands-on activity will be a fun way for them to learn a small step in saving water. The article will also inform them about how other countries face similar threats. Students will have completed a personal water use chart prior to this activity. Today they will only need to focus on the amount of water used for their showers. * **Engage:** Use four 2-liter soda bottles explain to students the amount of fresh water that’s on Earth. One should be empty to start. Tell the students the water in this bottle represents all the water on Earth. Pose the question, “If this is all of Earths water, what amount of Earths water is available for us to drink?” Have a volunteer to pour water into the empty container to show the amount of water they think is available for human use. Have the class share suggestions on whether they think there needs to be more or less water in the bottle. Set their estimate aside. Explain that you will now demonstrate the amount of fresh water available for humans. Show an almost full bottle of water and label is salt water; 97% of our planet is salt water that we cannot drink. Show 2 L bottle that has very small amount and explain that the other 3% is fresh water. Pour some out; “however some of this water is frozen in ice caps and not available”. Pour more out and say, “ This water is found in the air, in the soil, and deep underground, so it is not available for us either”. (There should be about two drops of water left.) “This represents all the fresh water available for human use. Less than 1% of all water on Earth is available for our consumption. * **Turn and Talk:** Do you think it’s possible for Earth to run out of fresh water for humans? Explain. (Have students share) * **Brainstorm:** As a class, create a T-chart to show ways that humans are a threat to the water supply and ways that we can conserve water. (Discuss the amount of water used as a class during shower time to lead into activity). * **Model:** Explain to students that they will be rotating through two stations today to learn about water conservation. At Station 1 they will be reading the article Running Low and organizing their conservation notes on a tree map. At Station 2 they will be building a shower meter. Let the students know that shower meters are one way to measure the amount of water you are using when you shower. It can also be used to limit the amount of time you spend showering so you can save more water. It can save each person thousands of gallons of water a year. Model building- Perforate the bottom of the cup using scissors. Punch holes on opposite sides near rim. Put key rings on. Attach rubber band/string. * **Independent Work: (See below)**Students are at each workstation for 15- 20 minutes. Both teachers will be assisting students at the shower meter station while the other students complete the reading. * **Assessment:** After both groups have been to each station have them answer the exit ticket in their science notebooks. * **Homework:** Try out shower meter (or set a 4 minute timer) and write a reflection. Too short? Too long? Can you convince other family members to do this? etc. | | |
| **DOK Questioning:** | | |
| How are humans affecting the fresh water supply?  Why is it important to learn about water conservation? Explain. | | |
| **Instructional Student Groups:** | | |
| Station #1: Reading passage Running Low and use a tree map to organize their conservation notes.   * Students should title tree map (see below) Water Conservation. * Discuss notes and finding with a partner when tree map is complete | Station #2: Shower Meter   * Using perforated medium size Starbucks cup instruct the students on how to build the water meter. (This cup has pre-marked lines that will be easy for students to use)   1. Poke holes in the bottom of cup.  2. Use hole punch to make a hole on opposite sides of the top of the cup.  3. Put a key ring through each hole  4. Cut large rubber band in one spot so that it becomes a long string. Attach each end to one of the key rings. This will be how they secure it over/around their existing showerhead.   * Once the meters are constructed have the students start trials. Explain that the goal is to figure out how much water to put in the cup in order for it to empty out by the time 4 minutes is up. Have students hold cups over plastic bins and record their trials in their Science notebooks. (Ex: first trial \_\_\_\_min at \_\_\_line on cup) | |
| **Reflect and Connect:** | | **Assessments:** |
| **Review Learning Target**  **Assessment**  **-Collect student’s tree maps to check for understanding.**  Exit Tickets: Why is it important to conserve water? What can we do to help conserve water at home? Explain using your observations and text evidence. | | **◻ Quick Check**  ◻ Student Work ◻ Survey **◻ Feedback**  **◻ Exit Slip**  ◻ Share  ◻ Discussion **◻ Observation**  **◻ Questioning**  **◻ Rubric**  ◻ Checklist  ◻ Other: |
| **Teacher Reflection**  **Was the lesson accessible to all learners ?**  **Would could be done differently to enhance this lesson for students.** | |  |

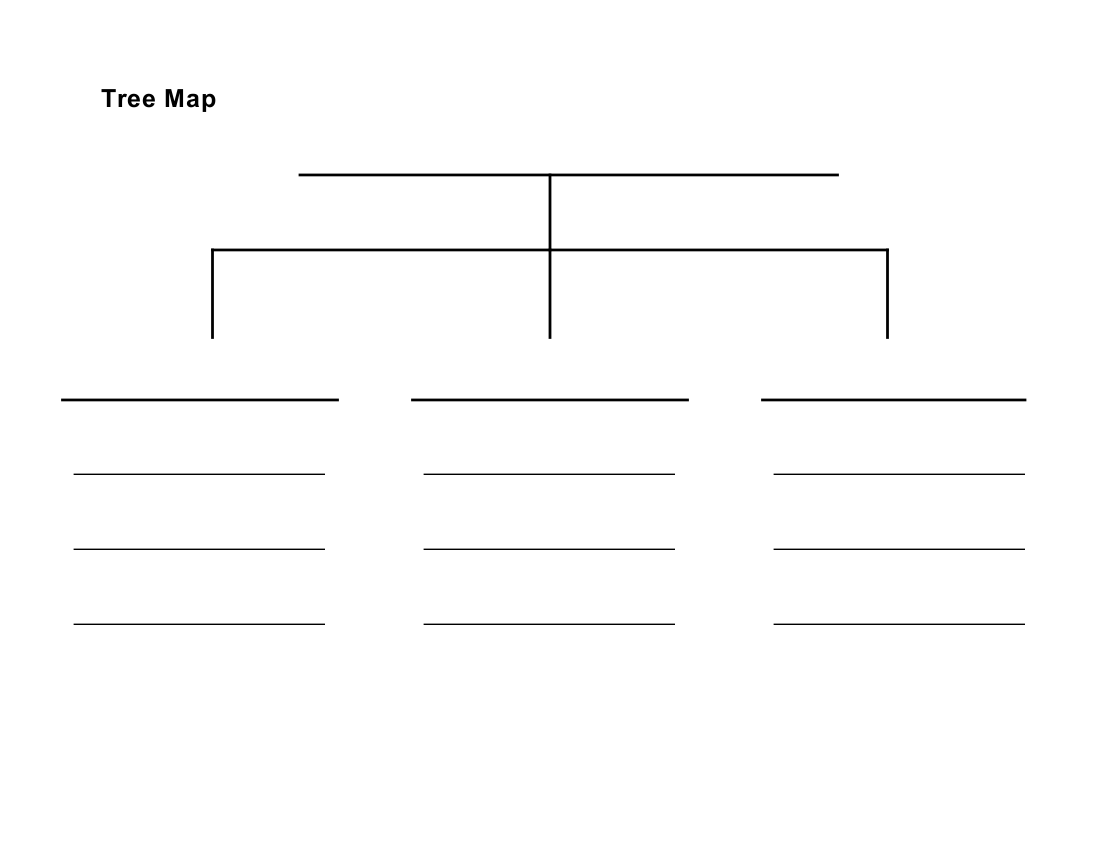
**Exit Ticket Below**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why is it important to conserve water? What can we do to help conserve water at home? Explain using your observations and text evidence.

**Exit Ticket Rubric**

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| **Level 4**  Student’s explanation shows a great understanding of ways to conserve water using observations from the experiment and evidence from the text Running Low. | **Level 3**  Student’s explanation shows good understanding of ways to conserve water using observations from the experiment and a few fact(s) from the text Running Low. | **Level 2**  Student’s explanation shows basic of ways to conserve water using observations. | **Level 1**  Student’s explanation shows limited understanding of ways to conserve water. No evidence or observations were used. |

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